

Tumor lysis syndrome

Tumor lysis syndrome occurs after the lysis of a large number of circulating tumor cells, typically leukemic blasts. It belongs to oncological emergent conditions. This massive breakdown is most often caused by malignancy therapy with cytostatics or antibodies. Cell cytoplasm is washed out into the circulation. These are mostly leukocytes that release biologically active substances - interleukins, which cause metabolic disruption. To remove these metabolites, the filtering capacity of the kidneys is exceeded, creatinine and urea rise. Potassium is released from the cells and hyperkalemia occurs.

Ethiology

- often begins after starting cytotoxic treatment in patients with hemato-oncological diseases (ALL, AML or NHL)

Diagnosis

- **LAB:** ↑ kreatinin (AKI), ↑ K⁺, ↓ Ca²⁺
- **KO:** ↑ LEU (50-100x10⁹/l), they could be ↓ Hb a ↓ Tro
- **Urine:** urate crystals
- **EKG:** arrhythmia
- **Markers of cell lysis:** ↑ LDH, ↑ uric acid, ↑ PO₄³⁻

Clinical picture

- renal failure - AKI: edema, oliguria, lethargy
- hyperkalemia: cardiac arrhythmia, nausea, diarrhea
- hypocalcemia: spasms

Therapy

- **fluid management**
 - Low risk: p.o. / i.v. **hydratation**, fluid balance monitoring
 - High risk: aggressive IV therapy, **hyperhydratation** F1/1,
 - **monitor urine output** → peculiarly start forced diuresis (furosemide);
- **prevention and treatment of urate nephropathy**
 - Alopurinol/Milurit, Rasburicasa
- **correction of electrolyte balance**
 - hyperkalemia: ECG monitoring, glucose with insuline
 - hyperphosphatemia: Sevelamer (phosphate binders)
 - hypocalcemia: 10% Calcium gluconicum

Links

Related articles

- Basic diagnostic examinations in haematooncology

Bibliography

- KLENER, Pavel. *Vnitřní lékařství*. 3. edition. Galén, 2006. ISBN 80-7262-430-X.